An Essay
on
Embryonic & Foetal life

Most respectfully submitted

To the Professors of the

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of

Pennsylvania

by

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Embryonic & Fœtal life.

There is perhaps no subject connected with the various branches of our science "The art of healing" which has until the present day, created more diversity of opinions and more difficulty in point of medical discoveries; than this.

Physiologists as well as the medical practitioners and experts; all are deeply interested in relation to new facts and observations concerning the Embryo and Fœtus in uterine life or existence.

Having received new ideas from more minute and clear observations, described to us, by our worthy and learned Professor of this chair,

facts of which the books do not speak
I ventured therefore to give the subject,
so worthy of attention, a preference in
selecting it for my Thesis.
In stating prevely the primary condition
to Embryonic life or utero gestation;
we have preceding this 1st impregnation
2d Jecundation. Impregnation takes
place most generally a few days after
menstruation; it may nevertheless take
place, exceptionally, at any other time.
In the female ovulation takes place
when menstruation begins, from the
12th to the 15th Year.
At every menstruation an ovule is
discharged, which itself gives rise
to menstruation. We have a separate
ovule for menstruation and a separate

one for fecundation also is there no con-
gestion in the organs during fecundat.
as is the case during menstruation.
The germ of the female is in the ovum
which is in size about 1/10 part of a line.
There is an affinity a will in the female
ovum, which desires to join the male
sperm; hence whenever the ovum
meets the spermatozoa it gets impreg-
nated and the changes which occur
during the immediate contact of the two
are the essential product of fecundation and
moreover the first commencement of embry-
onic life —. Now, from the very
moment the life of a new being has
commenced, as to character and feature
body and soul — it is from this time
out an immortal human being, which has

to live an eternal life - the same as we have. Hence it is gross and unpardonable wrong to destroy an embryo in its first existing and a crime of murder just as well as when committed at any subsequent period. This is a fact in spite of all, that differ in this point and even the law-makers and laws of countries itself - that do not consider it a crime until after the period of quickening, when the physical life of the offspring is perceived in the womb. I have never seen any reason given why, this is so, nor can any individual that would merely tire to cover, - his own guilt - under such pretense, give any reasonable proof that, what the true Scientific, conscientious

medical man, after year-long studies and most laborious searches in the tract of science in the human system, sets forth, in accordance with the Laws of God and nature, as True facts, should not be so?!

The offspring partakes of the life - or better receives life from the parent, hence life is derived from life - if so - it must be from the beginning - that is from the time of impregnation - it must continue if it ceases it can not be the same life again -; if the embryo perishes, as may do, it will not live again - hence life does not begin sooner nor later, but just at that time.

The source of life is God himself, who has imbibed man with a ceaseless eternal

spirit which is engrafted to the off-
spring at the time of impregnation
hence it continues unceasingly on
in progeny for ages and ages, and
until to a final change of every
single individual to a transient
and better life!

We can of course not see nor perceive
any sign of life in an embryonic cell
but this does not prove that it is
not in existence. There are
millions of minute animals in nature
so exceedingly small, that we can not
see them, nor perceive their movement
their breath or pulsation, and
still they live - live an independ-
dant existence from any other
species or animal, at the same time

appertaining of every minute char=
acteristic Below to the parent of its own
species.

Constituents of the ovum and its changes
The graviun vesicle, found first by Gravius,
is that vesicle in the ovaries, which contains
the ovum and consists of two tunicas
an external and an internal one.
Besides these we have the tunica
albugina, the capsular membrane,
which corresponds with the shell
of an egg, within this we have the
vitellus, vitelline membrane,
the yolk or granular fluid, the
germinal vesicle and within
this the germinal spot.
Every impregnated ovule when
discharged from the vesicle in the

ovary leaves a corpus Luteum, which is of a yelloish hue.

After the rupture of the ovisac an irregular cavity is usually left in the ovisac, but this soon diminishes partly on account of the increased yellow substance and partly on account of the genral contraction of the membrane itself, untill it is at last nearly obliterated.

The time occupied by the impregnated ovule in its course through the fallopian tubes, untill it reach the uterus, is generally from ten to twelve days.

When the ovule is set free from the ovaries, every part is there, as it were, excited, it is received by the

fimbriated ext. of the fallopian tubes, which are closely applied to the surface of the ovaries on account of their congested state at that time. They now grasp the ovum and convey it along their cavity to the uterus. The peristaltic movement of the fallopian tubes is principally due to the cilia which cloths their inner surface and perhaps partially to the vital influence of the ovum itself.

It may happen sometimes that, from some abnormal cause or condition in the female, the ovum remains either in one of the ovaries or fallopian tubes and constitutes them ovarian or fallopian pregnancy or, it may even escape and fall in the cavity of the abdomen outside of the peritoneum. In such a case the embryo generally

perishes after some days or weeks, or in case it does grow to an enormous size it will endanger the female. Sometimes it remains there in a cleath mass, like a tumor, for months and years.

All such abnormal states are termed extra-uterine pregnancy and do only seldom occur.

Development and growth of the embryo in uterine life.

The most remarkable phenomenas take place in the uterine system of the mother during pregnancy. As soon as the ovum is impregnated, the whole organism gets aroused to carry on the growth of her offspring.

The ovum passing through the fallopian tube to the uterus, changes no more except taking on one more adelit= tional membrane, which is the vitelline membrane. The ovuline mass is now more dense and swims in a white fluid within the vitelline membrane, Equivalent of the vitallus.

As it comes down to the last third of the tube, the vitellus multiplies every hair=breadth it moves, and yet before it has entered the uterus contains a vast number of vesicles or globules. Within the vitelline membrane the plasdodermic membrane is formed which consists of a serous and mucous coat and within the serous is the embryonic

membrane.

From the mucous coat of the plastodermic membrane, the amnion is derived and from the vitelline membrane we get the Chorion; so we have at this time from within: 1st The embryo, 2d The germinal membrane, in which the embryo is formed
3d The amniotic fluid
4th The amnion 5th The umbilical vesicle, 6 The allantois, which soon will take the office of the umbilical vesicle 7th The plastodermic membrane, 8 The vitalline membrane.
In addition to these we will yet get the epichorion and the utero-epichorion. The epichorion is the mucous membrane growing on the

chorion, and in that portion in which the villi grow the utero-epichorion is formed.

Desidua: That what has previously been called the "Desidua" is nothing more than the identical mucous membrane of the uterus. In an unimpregnated state it is carried off with the menses, but now it remains and is growing richer and stronger; making as it were a bed for the residual of the Embryo.

About 17 days after conception the embryo appears in the uterus; passing in it pushes the walls of the mucous membrane along before it, and gets nearly surrounded by, and inclosed

almost like a cyst.

All the blood now conveyed to the uterus, all its secretions which would otherwise have been absorbed, every part tends to the growth of the embryo.
The allantois begins to form about the 4th week, it sprouts forth from the caudal end of the embryo; at first as a little mass of cells, which soon exhibits a cavity - so that a vesicle is formed.
Its chief office is now to convey the vessels of the embryo to the chorion through which the chorion comes into vascular connection with the decidua.
The allantois is moreover a new channel of nourishment for the child or embryo
Until now the Embryo has lived from the umbilical vesicle, but as this begins

to be used up the embryo receives its nourishment from the mother through that canal.

The umbilical vesicle is a granular watery fluid within the inner or mucous coat of the amnion and after it has been used up it becomes a part of the chorion.

The amniotic fluid is that in which the fœtus swims inside of the amnion This however must be traced to a later period when the embryo becomes a fœtus, and all the parts are more fully developed, when the increase of that fluid becomes more enormous.

The adhesion of the amnion to the embryo or fœtus is on its back, extending around all over it like a bag.

In connection to this we may consider the amnion a reflected layer of the chorion.

The allantoid vesicle gradually extends towards the surface of the mucous membrane of the uterus, as a general thing towards the fundus and this occurs toward the latter part of the second month.

With this as the beginning of the formation of the „Placenta" through the allantois, arteries and veins grow out from the embryo, surrounding the membrane of the allantoid vesicle which are two arteries and one vein called the umbilical arteries and vein. They arise from the umbilical region of the embryo and the whole is envelop-

ed by the sheath of the amnion.
The root of the allantois becomes the
anus of the child at a latter period.
The cloaca, so called, just below
the allantois only remains a few days.

Formation of the Placenta.

This may be said to commence
about the 3 to month. Every function
and part connected with the develop=
ment of the embryo to a foetus and
from that to a mature child; is actively
engaged, they all enlarge grow and
expand "pari passu" with the growth
of the embryo; "In the same measure
the uterus expands and grows step
by step to keep up with the embryo
and foetus." When the allantois
has nearly reached the fundus,

one little villi has already appeared at the surface of the mucous membrane of the uterus, where the placenta is to be formed; this grows larger and larger and the membrane swells up and grows around it. Thus, the development of the villi has its origin from the embryo and that of the mucous membrane from the mother. So the growth goes on in both at the same time, hand in hand, until the end of gestation, when the mother-portion of the placenta and that of the foetus are fully grown into one another. They are nevertheless as to their development growth and circulation two distinct portions: the one growing out from the villi of the allantois,

the other from the mucous surface of the uterus. The umbilical arteries and vein, before mentioned, anastomose and take root at the same portion where the placenta is formed and the villii had first grown in, winding around the chord they form the most essential part of the placenta.

The two arteries arise from the descending aorta of the embryo and the vein is a branch of the mesenteric of the same.

After the umbilical chord is completely formed the following parts may be traced: 1st The tubular sheath afforded by the amnion, 2 The umbilical vesicle, with its pedicle or vitelline duct, 3rd The vena Omphalo

Mesenaica or mesentaric vessels of the Embryo, by which the yolk was absorbed into its body. 4th The remains of the Allant. 5th The umbilical vein, which in the latter period of gestation, or foetal life, constitutes the chief part of the chord. The two arteries which are main branches of the Hypogastric, that come off from the abdominal aorta as before mentioned convey the blood to the placenta, which has to be aerated and otherwise revivified, by being brought into contact with that of the mother. The umbilical vein returns this to the foetus and discharges a part of it into the vena Portæ and a part directly into the Ductus Venosus and vena Cava. The superfluous amount of nourishment which is not needed for the growth and

development of the embryo is used up for the growth of the "Placenta".
The structure and substance of the placenta is of a vascular nature containing numerous ramifications of arteries veins and nerves.
It measures after it is formed three fourths of an inch in thickness and at maturity of the foetus 18 to 21 inch. long. The arteries and vein ovied around the chord in a peculiar twisted manner so that when accidentally twisted or looped it may do no injury to the foetus. In short; every thing corresponds admirably, nature providing wonderfully in every respect for the welfare and safety of the offspring.
The placenta with the chord may also

be compaired with a fruit-tree:
The placental portion of the mother
being the earth, the chord the stem
with its vessels - for the roots, ramifying
into the earth - and the foetus itself
is the fruit." This constitutes the
arbor vitae, or tree of life.

"May all men sow good seed
in order to reap worthy and sound fruit."

The amnion,

is a part of the serous membrane of
the blastoderm, it grows and
expands gradually with the develop-
ment of the foetus. The fluid contained
within the amnion is probably derived
from the foetus, it principally consists
of albuminous fluid and saccharine
matter, its color being a variable one.

Towards the latter part of Gestation
the amnion joins - and becomes one
sheath with the chorion.
The vitellin membrane becomes the exo=
chorion. The serous Lamina of the
"Plastoderm ic membrane" after being
ruptured the endo chorion, namly:
it forms one layer.

Towards the middle of gestation
the ammonic fluid weighs about equal
with the foetus; its most essential
use, throughout the latter part of foetal
life is, to keep the child from injury
and protect the chord.
In the embryo the heart is at first
only a straight artery containing one
ventricle and one auricle, it however
gradually doubles up into two auricles

and two ventricles which form a heart
The blood pushing into it causes it to beat.
"The blood" is the essential part
of life - the life of the blood is in the globule
itself - for every blood - Globule has a
distinct pulsation; hence is due to
this vital force in the blood, the pulsat.
of the heart." Prof. G.

"Size and weight of Embryo & foetus
at different stages in uterine life."
The embryo at 5 weeks is yet very small, can
scarcely rest on the point of a pen.
The 7th week it is about an inch long and
weighs from 3 to 5 drahms.
At two months two and a half inch long,
nose is obtuse yet, and mouth begins to form
Between this and the third month the 1st
distinct point of ossification can be seen in the

clavicle and scapula. At 10 weeks it is five and one half inch long, the features are a little more distinct now and the chord begins to get spiral.

At 3 months the embryo weighs from 3 to 4 ounces and is from five to six inches long. "At this time more abortions occur than any other time of pregnancy."

The eyes, neck and chest also the sex can be distinguished at this time.

At four and a half months the embryo is called foetus; now we can trace the fontanelle, also see silvery hair on the head, eyes are closed, mouth is closed, but the nostrils are perfectly formed; and a child born at this time may live several days.

At five months the foetus is from 8 to 10 inches long and weighs from 8 to 10 ounces.

it can be quite well distinguished now in every way; the chord and placenta are well formed. We observe also sebacious patches all over the child within the amniotic fluid and the pupils can be seen.

At 6 months the foetus measures from 11 to 12 inches and weighs about 16 ounces; the hair is now longer and thicker, the lids are quite plainly seen and hair at the margins begin to grow. The nails on the fingers and toes are more distinct, but those of the fingers are longer than those on the toes. At seven months the foetus measures 12½ inches in length and 18 to 20 ounces in weight. The child is now more rounded fuller and plumper, the bones of the cranium are now arched and the iris is forming, which can be seen in form

of a ring; the sex is clearly distinct.
The first testicle noticed is usually formed in the left side about this time.
At eight months it measures from 16 to 18 inches and weighs from 4 to 5 pounds.
A heavy fussy down is seen all over the body of the foetus; the skin is red and the lower jaw is longer than the upper.

The foetus at nine months, or at term, is in the majority of cases 19 inches long and the average weight is from 6 to 7 pounds. Sometimes a child at birth may weigh more as there has been such weighing from 9 to 11 pounds, when over 12 pounds it is generally called a monster by Obstetricians.
The umbilicus at 9 months is always in the center of the abdomen, a little below. every part is now perfectly

developed and the foetus having arrived at maturity, which is 270 days from the time of impregnation, we find the bones of the head joint by means of cartilage.

Functions of the Foetus

and the corresponding changes of the uterus during foetal life.

The uterus consists of three coats, a serous, a muscular, which is that hollow muscle constituting the main part of the organ, and a mucous coat."

The serous coat is outside of the organ adjoining the broad ligaments and is attached to the peritoneum, which holds the uterus in its place.

The muscular coat is of an elastic nature, with transverse and longitudinal fibres running crossways and enterlacing with

each other and thereby forming a bag-like organ.

The mucous coat is that, which lines the inner surface of the uterus; it is like the serous or outer coat, continuous with the Fallopian tubes and ovaries which are appendages to the uterus.

The uterus consists of a neck, fundus and body; being first, when yet in an unimpregnated state of a flattened shape changes now to a pyriform and as it grows with the foetus „pari passu" it changes gradually from the beginning of gestation to the end.

It becomes towards the 3rd month already more oval and at the 6th month it is almost rounded.

Towards the 9th month it becomes

oval-round again and flattened from behind.

The first month the uterus sinks lower down in the cavity of the abdomen, about one inch. At the fourth month it rises again above the superior Straigns so that, about the fifth month the fundus is one inch below the umbilicus. At the end of the sixth month it rises one inch above the umbilicus; the seventh month two inches above; the eight~~h~~ month five inches above; it rises yet a little higher untill the middle of the ninth month, when it sinks again as low as at the end of the eight month, where it remains stationary.

The walls of the uterus gradually soften as pregnancy advances; in general

from above downwards. The neck softens correspondingly with the fundus, but from below upwards.

The internal os terminates with the body, the external os with the neck.

The neck does not shorten in the least untill the last two weeks of pregnancy, at which time the external and internal softening meet at the internal os.

About the 4th month, softening of the neck of the womb is 1 inch, the 7th month it is one inch further and the eight month it is soft all through.

Now, the last two weeks the neck gets lost and takes on the same round-spherical form with the uterus.

In the first, or „Primipera Pregnancy" we find it however different, there no finger can be introduced into the neck untill at birth;

back in all Second and subsequent pregnancies
this can be done after the 4th month.
By expansion and growth of the uterus,
the broath ligaments get as it were back, but
not by virtue of stretching, as is generally thought
it has grown as well as the uterus in thickness,
but less in espansion; it is at this time a
pathological condition, stretching and growth together.
The canal takes place in the peritoneum.
The mucous coat of the uterus as well as the
muscle itself, with the arteries veins and
nerves keep all up in growth and expansion
"pari passu" with the rest.

Functions of the foetus.

The functions of the foetus are principally four: Nutrition, Secretion,
respiration and circulation.
The foetus is nourished by means of maternal

sape. The foetus has its own circulation, but since all nourishment it needs comes from the mother it lives in a similar manner as a tree does from the sapo of the earth and this process is carried on by means of the Placenta and the umbilical chord.

Respiration.

The child respires during uterine life, but in a different manner than we do. The foetal respiration is carried on by means of the cord and placenta through the mother, oxigenization going on by this means the child can live just as well as we who breath with the lungs! This process of breathing is therefore most similar to that of a fish.

Secretion.

The foetus in utero secretes principally bile

which is carried by secretion from the mother
It also secretes ~~skim~~ milk ~~not~~ until shortly
after birth. Another secretion called
"Conium" is also secreted from the child
mostly after birth and this latter is usually
effected by the first milk of the mother,
which acts in some measure like a purgative.

Circulation.

We have seen thus far, that the blood is the
principal life part and the most essential
nourishment of the foetus; hence a system
is necessary to carry on that fluid to all the
parts and functions of the foetus; this is the
system of circulation, which however
differs in the foetus from that of the adult.

Thus: the fluid brought from the
Placenta, by the umbilical vein is
partly conveyed at once to the ascending

vena cava, by means of the ductus venosus but chiefly flows through the vena portae into the liver, where it reaches the ascending cava, by the hepatic vein.

Having thus been transmitted, through the great depurating organ, the Placenta and the great assimilating organ the liver, it is in the condition of arterial blood, but being mixed in the great vessels with that, which has been returned from the trunk and the lower extremities, it loses its character in some degree by the time that it arrives in the right auricle of the heart, which it now enters. Here it is prevented from getting mixed with the venous coming from the ascending aorta, by the Eustachian valves, which serve to direct

the arterial blood coming from the ascend-
ing Cava through the foramen ovale
into the left auricle, from where it
passes into the left ventricle and the
venous blood that has been returned
from the descending Cava is also
directed into the right ventricle.
By the contraction of the ventricles, the
arterial blood which the left contains
is propelled into the ascending Aorta
and supplies the branches, that pro-
ceede to the head and upper extrem-
ities before it undergoes any admixtures,
whilst that of the venous blood contain-
ed in the right ventricle is partly trans-
mitted by the Pulmonary artery to the
Lungs, but the greatest part finds its
way through the Ductus Arteriosus

into the descending Aorta; mingling with the arterial current, which that vessel previously conveyed and passing thus to the trunk and lower extremities. Hence the head and superior extremities whose development is required to be in advance of that of the lower are supplied with blood nearly as pure as that which returns from the Placenta; whilst the rest of the body receives a mixture of this — with that which has previously circulated through the system. Of this mixture a portion is again transmitted to the placenta, to be renovated by coming into contact with the maternal fluid.

As soon as the child is born,

the course of the current = circulation
is entirely changed by the cessation
of the circulation through the
Placenta, and by the enormous
increase in the quantity of blood
than transmitted to the Lungs;
which takes place immediately on
the first inspiration: The Ductus
Venosus and Ductus Arteriosus soon
shrivel up into ligaments, the
Foramen Ovale becomes closed by
its valve and the circulation is
now carried on in the same manner
as in the adult."

"Having now concluded embryonic
and foetal life, I will yet add
a short appendage of the

Pathology of Gestation.

Pathology of gestation comprises all the functions of the female and conditions of functions on which the development of the embryo and foetus may be dependant.

They may be either normal or abnormal; they are normal when every thing goes on undisturbed and nature leads her through that state without any difficulty; abnormal, when lesions set in which makes her condition troublsome and difficult and in the same measure endanger the welfar of the offspring. As such we have 1st Lesions of digestion 2d Lesions of circulation 3d of secretion; 4th " of the mind and sensorium; 5th Accidental lesions, and so forth. "

All such lesions we must treat accordingly

with care and proper remidies.
Gestation affords us a good opportunity
to cure Chronic diseases of any
Kind, more so than any other
time, in which we may find the female.
Gestation being a natural state of
the female we have no reason to
omite medical treatment during such
time, on the contrary the patient is more
susceptible on account of her organism
undergoing such a marked change.
We differ in this respect wildly from
the old school, which says nothing
can be done - she has to suffer all
Lesions and concomittant diseases
untill delivery — : How foolish does
that sound in our practice! We
Know how to help the distressed

and suffering female, to remove all the dangerous symtoms and complications of old diseases, which otherwise might produce abortion and so lead her safely through the period of gestation.

With our highly attenuated remedies, the magic homoeopathic Globule applied in accordance with the existing characteristic symptoms — as they were given to us in fully indicating Key-notes — we will succeede in curing most diseases and removing all causes for such lesions generally accompaning this period The earlier we get the patient the more healthy and consequently the more fit and with less danger she will enter that state.

By homoeopathic treatment, dishapen malformations, malpresentations as well as untimely Labor, or abortion, can be prevented. It is a well known fact to us, as well as to the intelligent public, that such women, that were treated by Homoeopathicans go more easily, with less danger through the usual period of pregnancy, than others do that are left alone or, worse still, are interfered with imprudently roughly and quack-like."
We also find children born under such treatment, as the true "Hahnemannian" to be more healthy better looking fuller and rounder, better shaped, Rounder in mind and body —.
They will be more healthy in general, - live where others will die."

In short, they are the true representatives of our „art of healing" and the living monument of our Science.

The same is the case with the female, or the mother. She is less apt to abort, more fruitful, more healthy in general, - and important above all, - she will remain so for all the time coming!"

Such are the fruits of our „Glorious art of healing"

„Homoeopathy."